CONFIDENTIAL

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11 March 1960

25X1

MEMORANDUM FOR THE RECORD

SUBJECT: ASA Mobile Unit, Radio Equipment Installation (ED-175P)

1. On 25 February and the undersigned visited the 25X1
contractor to discuss the present status of the project and the proposal for fabrication, installation, and evaluation of the radio equipment for the ASA Mobile Unit.

2. A proposal for fabrication, installation and evaluation of the four channel radio equipment was received from dated 27 January 1960. 25X1
The fabrication, sub-contracted, portion of this proposal was released; however, the balance of the proposal was in doubt as to the extent to which the contractor invisioned the overall effort. , TSD/ASB, was consulted and arrangements were made to visit the contractor for a clarification of the proposal. 25X1

3. Attached is a copy of the outline for installation and evaluation of the radio equipment as invisioned by and concurred in by the undersigned. The location of the radio equipment, transmitter-receiver and control head, was determined jointly by MI, and the undersigned. 25X1 25X1
Positions are shown in attached photos. A comparison evaluation of a dipole antenna vs. the luggage rack antenna was requested by , TSD/ASB, for 25X1
range comparison purposes. This request has been incorporated in the testing program. In addition, will obtain range tables for similar equipment being 25X1
used by the Ohio State Highway patrol. The base station for all evaluation will be located at site. Although the installation and testing program appe 25X1
to be extensive, it is necessary to insure reliability of the unit. ex- 25X1
pressed concern that the proposal was submitted at the lowest possible price and that overrun probability would be about 3 - 4. This fact will be brought to the attention of CI Staff. If CI's funding is limited to the degree that a reasonable effort can not be anticipated, the undersigned suggests that either a separate task be written by TSD or the general service task utilized to insure the quality of the unit.

4. The CI Staff did not desire an instruction manual nor have any arrangements been made to obtain detailed drawings of this unit. If any similar units are envisioned for Agency use, it is the undersigned's opinion that funding should be made available to secure an appropriate procedure manual and detail drawings. advanced an estimate of $3,000 to cover the drawing cost 25X1
Subsequent Mobile ASA units would cost approximately $20,000 to $25,000.

5. It is the undersigned's opinion that the completed mobile ASA unit can not readily be given to indigenous personnel without some explanation as to the equipment function, maintenance, and operational procedure. Since no written instruction manual was desired, it would seem wise to have a technical liaison representative accompany the mobile ASA unit to its destination for

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the sole purpose of explaining the functions and procedures of the unit. In addition, any technical questions arising at the delivery destination could be answered immediately; thereby eliminating the laborious task of cabling information and minimizing the possibility of misunderstanding.

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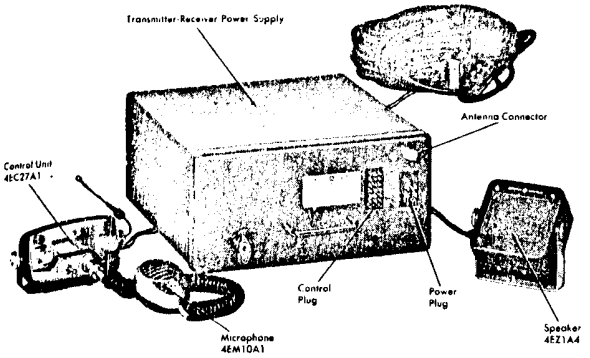
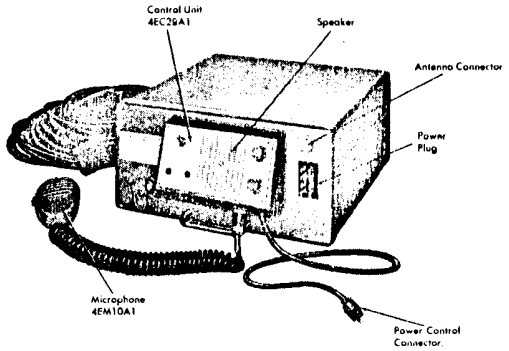
ECP-15A

PROGRESS LINE

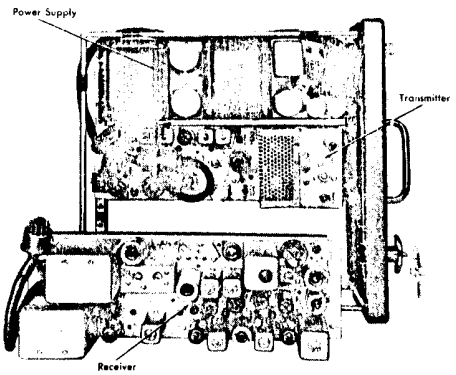
MOBILE COMBINATIONS



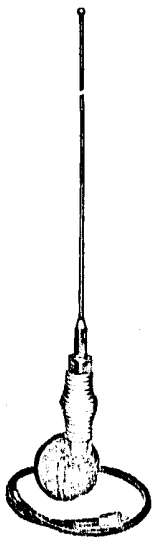
TYPICAL TRUNK-MOUNT MOBILE COMBINATION. The control-unit and speaker are mounted separately from the case. The drawer-type standard case also has a removable cover for easy servicing.



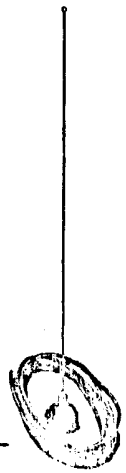
TYPICAL FRONT-MOUNT MOBILE COMBINATION, showing the control-unit with built-in speaker attached directly to standard case. The form factor of this case permits convenient mounting under automobile or truck dashboard, yet leaves ample leg room.



TYPICAL TRANS.-REC. CHASSIS ASSEMBLY. The transmitter, receiver, and power supply mount to the case rack as shown. Plug and receptacle connections are utilized for all unit interconnecting.



Low Band (25-54 MC) Mobile Antenna



High Band (144-174 MC) Mobile Antenna

Accessories Required for Standard Installation
(Refer to Equipment Index on back for Ordering Information)

Trunk Mount	*Front Mount*
Control Cable	Power Cable
Power Cable	Power Control Cable
Fuse and Relay Assembly	Fuse and Relay Assembly
Fuses	Fuses

Printed in U.S.A.

RADIO SIZE 4x17x18

RADIO EQUIPMENT INSTALLATION

(1) Location of Equipment

(a) Transmitter and Receiver — PER TSS/CD ON 25 FEB 1960
(b) Control Head — PER TSS/CD ON 25 FEB 1960
(c) Jack Boxes — " " " " " "
(d) Speakers — " " " " " "

(2) Special Hardware (mounting bracket, etc.)

(a) Design
(b) Build

(3) Install Conduits

(a) Power Cable - (battery to unit)
(b) Control Cable - (unit to control head)
(c) Antenna Lead - (antenna to unit)
(d) Speaker Leads - (control head to speaker)
(e) Control Leads - (control head to jack boxes)

(4) Install Equipment and Modify Vehicle (where necessary)

(a) Special Hardware - (mounting brackets, etc.)
(b) Transmitter-receiver unit
(c) Control Head
(d) Jack Boxes
(e) Speakers
(f) Install all cables and leads in conduits.

(5) Make All Connections

(a) Dress and solder all leads
(b) Attach all connections, etc.

(1) Antenna and Radio Tune-up

(a) Retune transmitter and receiver, after installation, to proper frequencies
(b) Tune antenna to transmitter output
(c) Check out speakers, head sets, mikes, jack boxes and other related equipment.

(2) Base Station Set-up (Requirements)

A. Battelle supplied transmitter and receiver (for 4 channel operation)*

(a) Modify 30-40 MC equipment
(b) Locate and install transceiver equipment
(c) Provide power source
(d) Tune and adjust equipment for use.

B. [redacted] 25X1

C. Base Station Antenna

(a) Install antenna and run in antenna lead (locate on top of Building No. 1)
(b) Match antenna to base station equipment and to proper frequencies.

(3) Preliminary Field Test

(a) Pre-select locations to determine range
(b) Expand field test for overall conditions - including operation in motion, if desired
(c) Modification if warranted.

(4) Final Field Test

(a) (Same as 3(b) above
(b) Field test with Sponsor.

* Note: In the case of Battelle supplied equipment, a one channel (30-40 MC) transmitter would be used. This unit would be modified for use in the proper frequency range; then, for each channel of interest, a matching crystal would be installed and the unit retuned.

[redacted] 25X1

TIME ESTIMATE FOR RADIO EQUIPMENT BASED ON 2 MEN/DAY

3 days for location of controls, transmitter and receiver, conduit, wires, cables, etc., and mock up of equipment (design of brackets, etc.)

1-½ days to install transmitter and receiver unit - includes vehicle modification, if necessary, and special mounting hardware.

2 days to place conduit and wire transmitter, receiver, controls, and antennas.

2 days to place conduit, fabricate jack boxes, install and wire jack boxes and speakers.

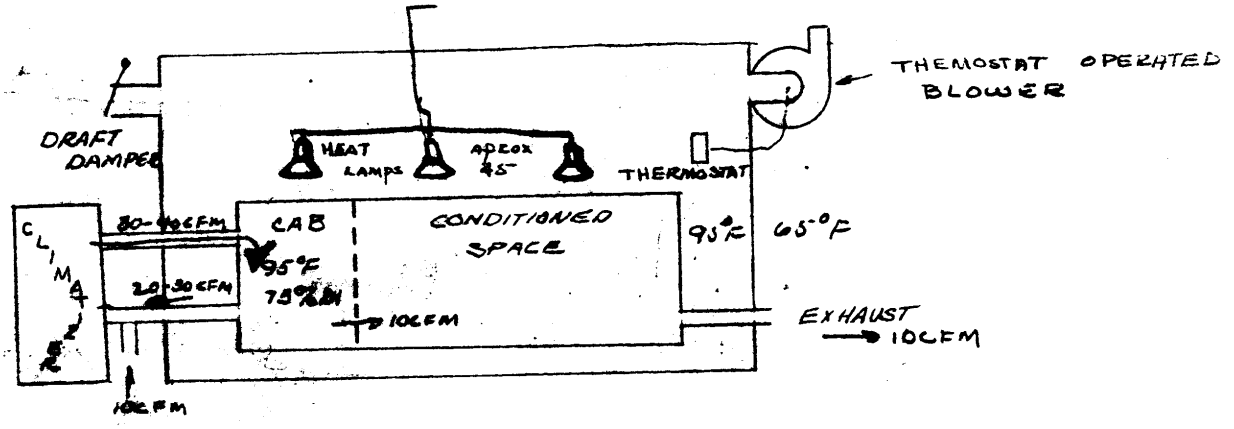
2-½ days to set up base station for remote tests - includes power source, etc. & EQUIP MODIFICATION,

5 days to fabricate and install antenna, tune equipment, and run field tests - includes antenna compensating equipment for base station and returns single channel equipment, if used.

1 day for modification.

1-½ days for completion of remote tests - including sponsor visit.

VEHICLE TESTING



WE EXPECT TO USE 45" LAMPS TO ACHIEVE THE DESIRED SURFACE TEMPERATURE ON THE VEHICLE

45 lamps @ 375 watts each = $\frac{45 \times 375}{1000}$ KW = 18.75 KW.

$\frac{\text{Btu}}{\text{min}} \times .01757 \frac{\text{KW min}}{\text{Btu}} = \text{KW} = 18.75 \text{ KW}$

$\frac{\text{Btu}}{\text{Hr}} = \frac{18.75 \text{ KW}}{.01757 \text{ KW min}} \times \frac{60 \text{ min}}{\text{Hr}} = 57,700 \frac{\text{Btu}}{\text{Hr}}$

assume 95% eff of Lamps = $57,700 \times 95\% = 55,000 \frac{\text{Btu}}{\text{Hr}}$

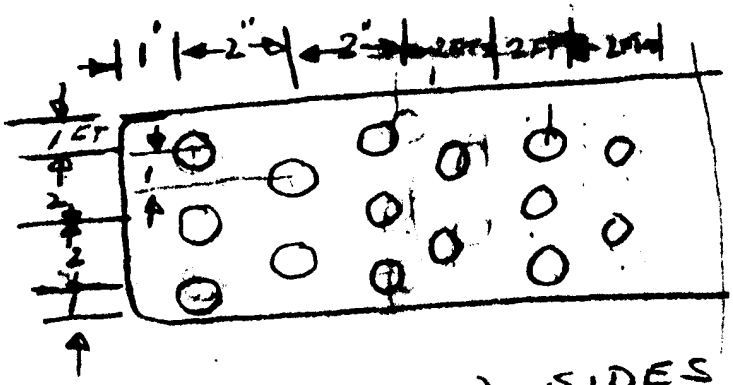
Losses to Vehicle about $\frac{1000 \text{ Btu}}{\text{Hr}}$

walls, roof, floor = 2 Btu/Hr-sq ft assume 65°F outside

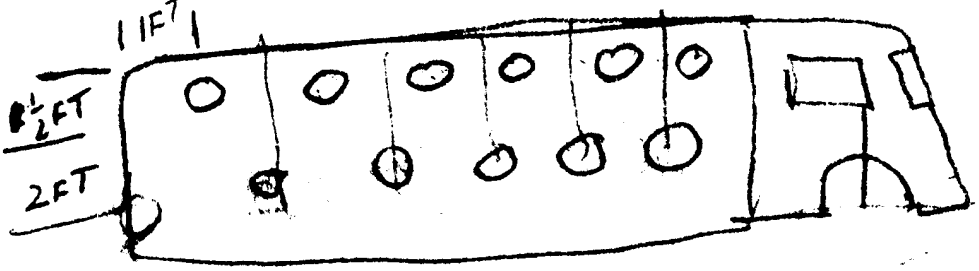
55,000 − 47,000 = 8,000 $\frac{B}{Hr}$ to use for temp regulation in the envelopes enclosing the vehicle.

(3)

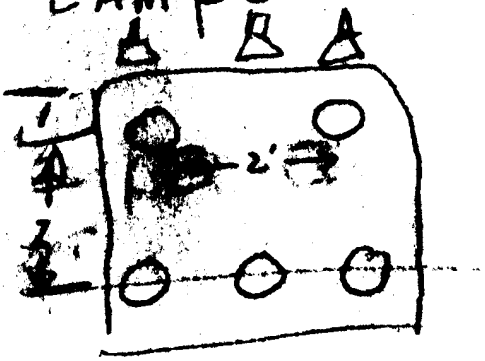
ROOF SPACING OF LAMPS ON ROOF



LAMPS ON SIDES

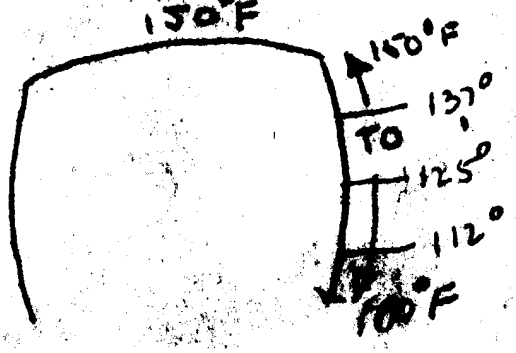


LAMPS ON BACK

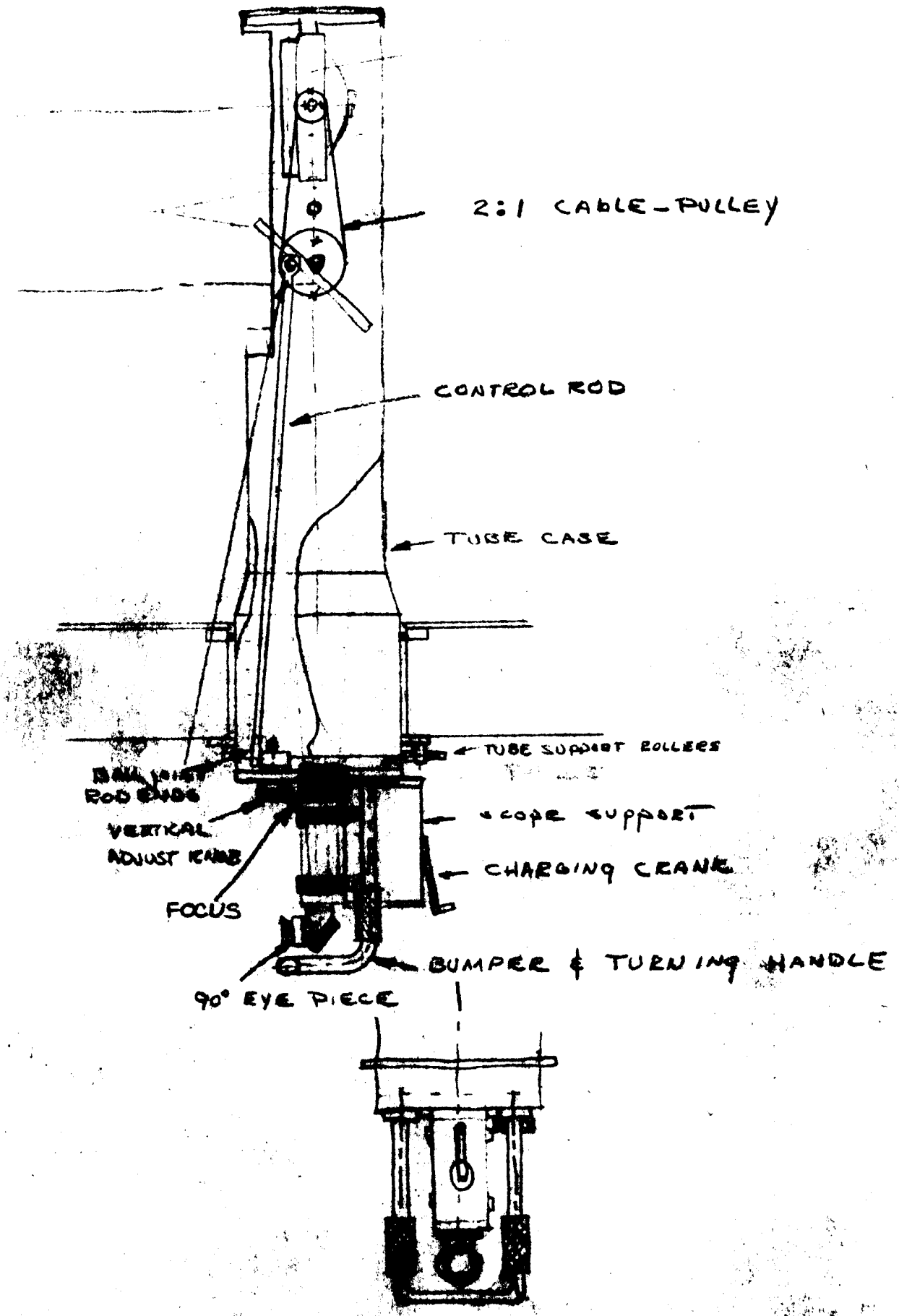


USE 375W INFA-RED EACH LAMP REPRESENT A CURRENT LOAD OF 3.4 amps

REMEMBER TO KEEP LAMPS 15" FROM PAINT SURFACE

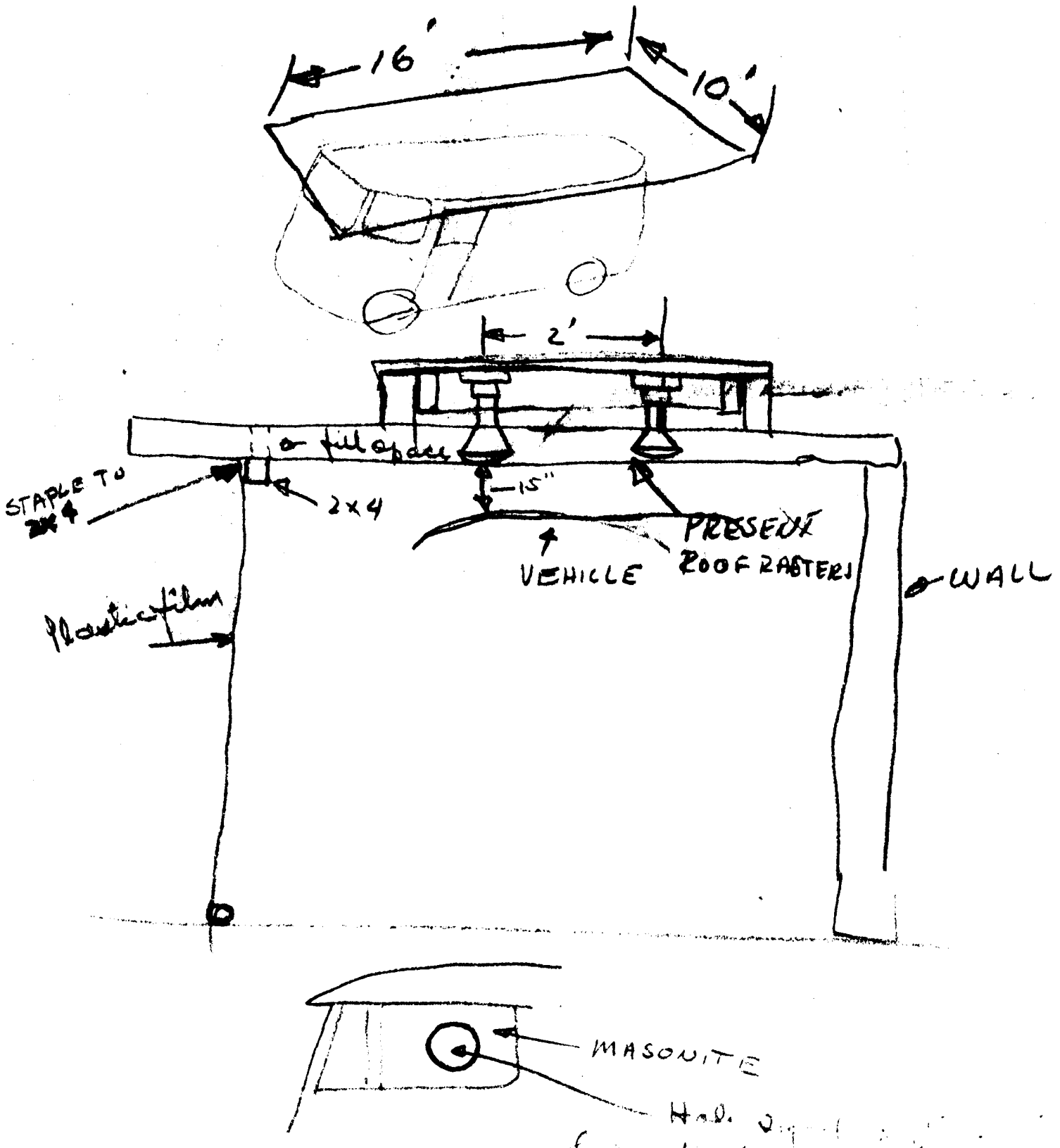


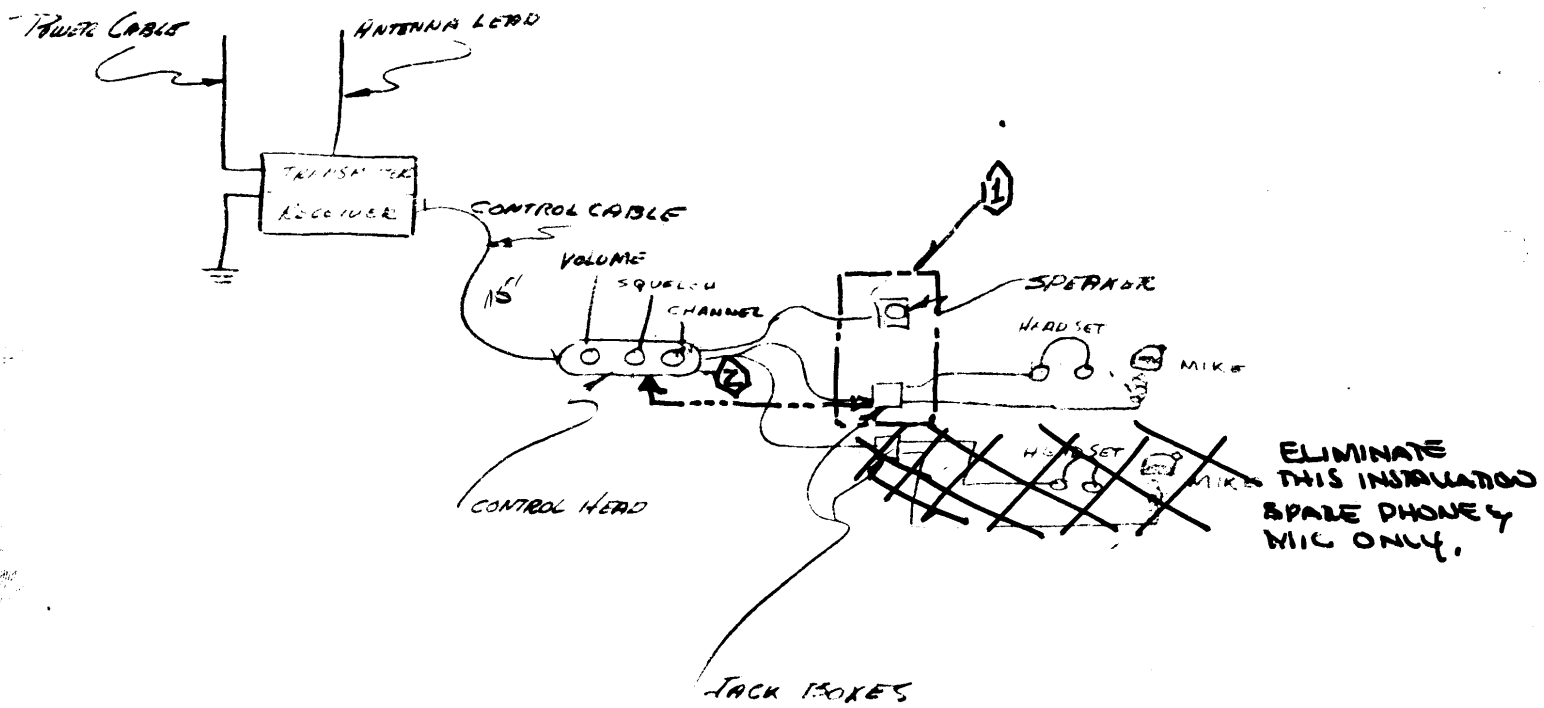
(4)



(4)

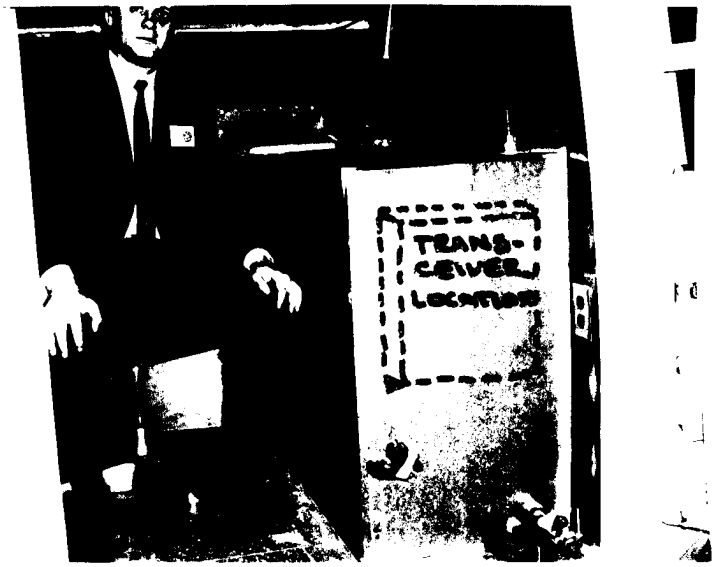
CONDITION ROOM



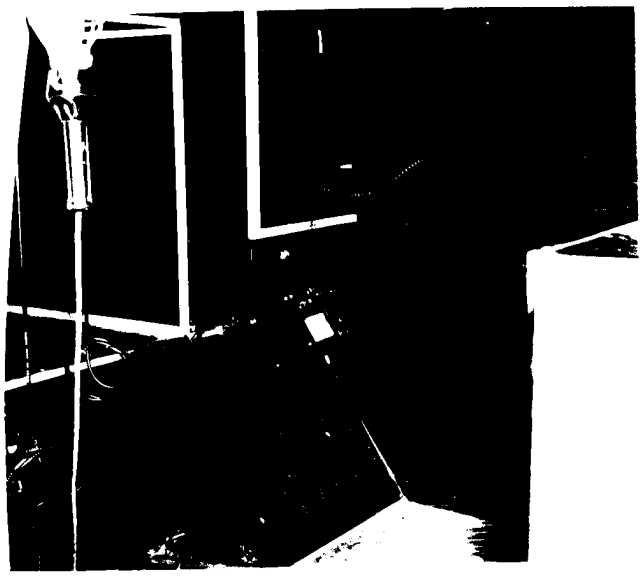


(1) COMBINE SPEAKER & JACK BOX INTO ONE UNIT. SPEAKER TO HAVE SWITCH FOR PHONE OR SPEAKER.

(2) IF POSSIBLE INCORPORATE JACK BOX INTO CONTROL HEAD & ADD SPEAKER. PREFER TO (1)

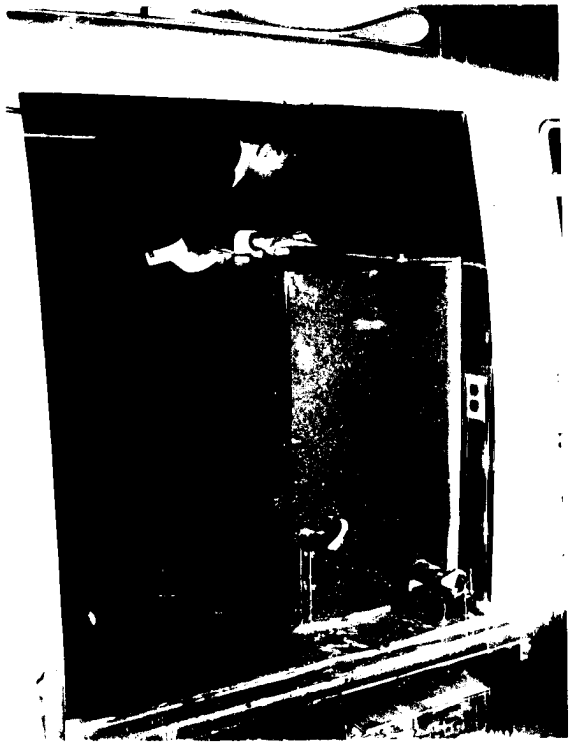


FORWARD PORTION OF WORKING COMPARTMENT SHOWING ICE CHEST AND TRANS-CEIVER LOCATION .

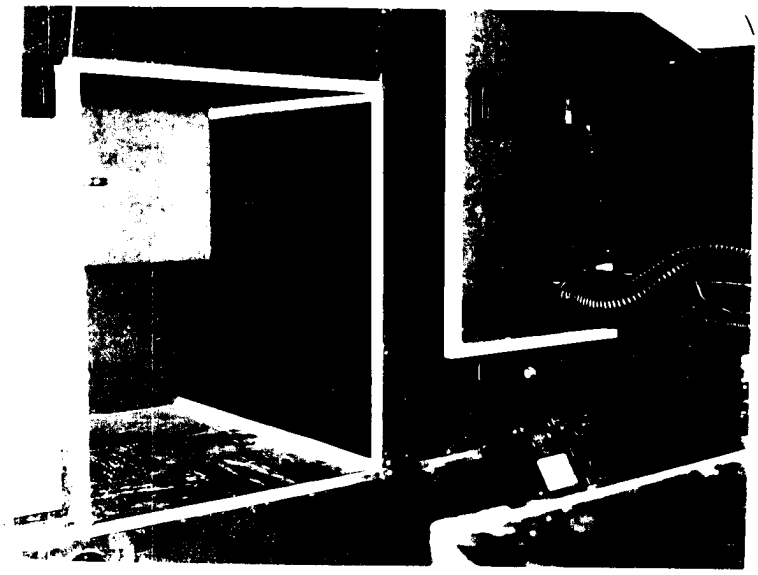


REAR PORTION OF WORKING COMPARTMENT SHOWING EQUIPMENT CONTROL CENTER AND RADIO CONTROL HEAD LOACATION.

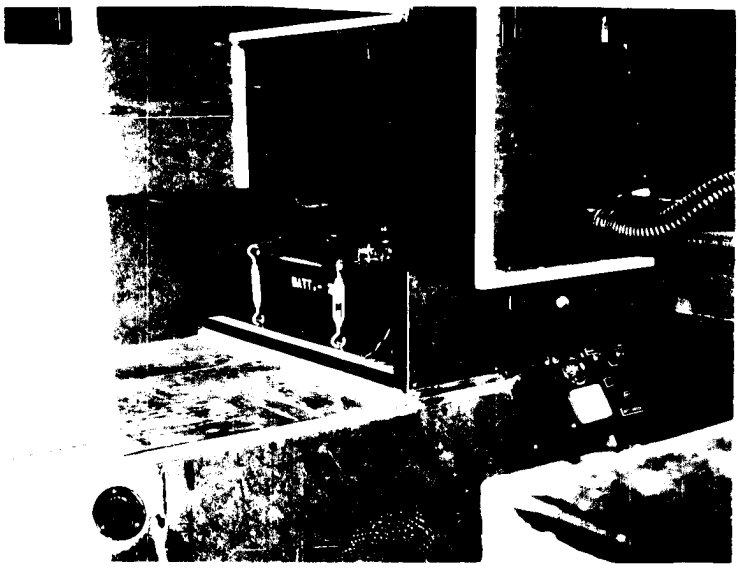
VIEW IN WORKING SPACE SHOWING OVERHEAD AND PERSONNEL CONFINEMENT



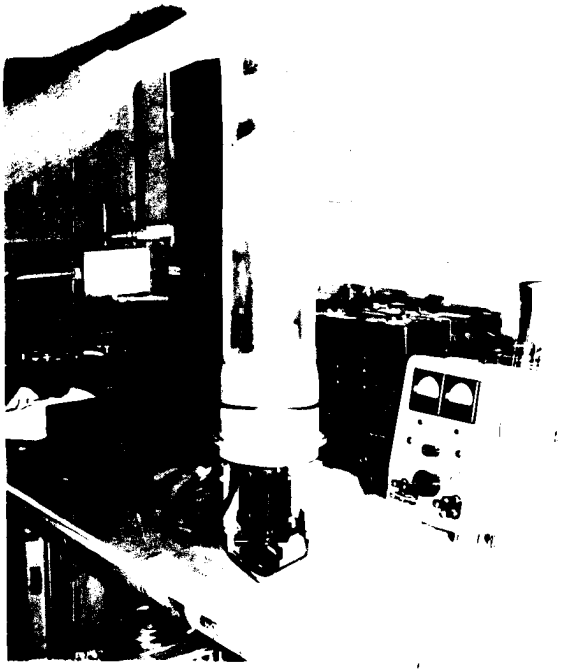
VIEW SHOWING FORWARD WORKING COMPARTMENT AND USE OF FORWARD CLOSE IN SURVEILLANCE TECHNIQUE.



REAR VIEW OF WORKING COMPARTMENT SHOWING CONTROL CENTER, LOWER RIGHT, AIR CONDITIONING INLET GRILL, UPPER RIGHT, AND BATTERY STORAGE AREA.



REAR VIEW OF WORKING COMPARTMENT SHOWING EQUIPMENT CONTROL CENTER AND PANELS REMOVED FROM LEFT BATTERY STORAGE AREA. EXHAUST OUTLET FOR COMPARTMENT ATMOSPHERE SHOWN AT LOWER RIGHT.



INFRA-RED PERISCOPE MOCK-UP SHOWING LOCATION OF REFLECTING MIRROR, LIGHT SOURCE, AND RECEIVER.

CLOSE UP OF RECEIVER, BASE, AND DIRECTION CONTROLS. TOGGLE SWITCH CONTROLS THE INFRA-RED LIGHT SOURCE. A PILOT LIGHT IS LOCATED TO THE LEFT. THE LARGE KNOB AT THE RIGHT SIDE OF THE BASE CONTROLS THE VERTICLE DIECTION OF THE INFRA-RED LIGHT SOURCE AND THE REFLECTING MIRROR. HANDLES CONTROL HORIZONTAL.

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ED-175 P
Mobile Unit
21 MARCH 1960

TELECON C [redacted] 25X1

SUBJECT: ENVIONNMENTAL TEST OF AIRCONDITIONING IN V/W ASA MOBILE UNIT.

1.- THE INITAL ENVIONNMENTAL TEST OF THE V/W UNIT HAVE BEEN CONDUCTED AT [redacted] WITH SUCCESSFUL RESULTS. THE CONDITIONED TEST SPACE TEMPERATURE WAS 120F. VEHICLE ROOF TEMPERATURE 180-190F, VEHICLE SIDE PANEL TEMPERATURE 135F. INTAKE AIR FROM "CLIMATIZER" WAS 100F AT 95% R.H. THE CONDITIONED INSIDE WORKING SPACE STABELIZED AT 78F AND 50% R.H. A PERIOD OF 8 HRS WAS UTILIZED FOR THIS TEST. AT THE CONCLUSION OF THE TEST APPROX. 40-50% OF THE TOTAL ICE LOAD, 450lbs, REMAINED. OCCUPANCY WAS INTERMITENT ONE & TWO MEN, SOME SMOKING, AND NUMEROUS WORKING SPACE DOOR OPENINGS. 25X1

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2 - It would appear that the ice making machine load of 250 lbs would sustain one individual for 8 hrs at 120F outside ambient conditions, 95% R.H. "Andy" & I will conduct our test 28 March.

Lisa